

CLAIMS**What is claimed is:**

1. A system for passively and remotely identifying objects, comprising:
a series of signatures positioned on exterior surfaces of a plurality of objects, each of the signatures having an encoded, two-dimensional, reflective configuration that is spectrally tailored to define a unique signature for each of the objects; and
an optical imaging system for remotely and passively detecting and decoding the signatures and thereby identifying the objects based on the signatures.
2. The system of claim 1, wherein the optical imaging system has a scanning system that passively records light emanating from the signatures in respective, specific wavelength bands, and recognizes the signatures to discern what the objects are based on a database of information.
3. The system of claim 2, wherein the wavelength bands are encoded to lie outside of threat bands of hostile detectors and hostile guided weapons.
4. The system of claim 2, wherein a remote position of the scanning system is selected from the group consisting of ground-based, airborne, and satellite-based.
5. The system of claim 1, wherein a material used to form reflective surfaces of the signatures only reflects energy in wavelength band widths of approximately one-half wavelength.
6. The system of claim 1, wherein the signatures utilize patterns and symbols to further distinguish between the objects.
7. The system of claim 1, wherein the signatures are painted on the objects.
8. The system of claim 1, wherein the signatures are adhered to the objects as appliqué.

9. The system of claim 1, wherein the signatures are invisible to the naked human eye such that no intuitive knowledge can be gained by human observation of the signatures.
10. The system of claim 1, wherein the objects comprise equipment, airborne aircraft, grounded aircraft, and tanks.
11. The system of claim 1, wherein the system tracks engagements of the objects and movement of supplies to and from the objects in real-time.

12. A system for reflecting light, comprising:

a signature having a substrate and a thin film mounted on a surface of the substrate, the thin film comprising a laminate including a plurality of layers having a high index of refraction that are interleaved with a plurality of layers having a low index of refraction, each of the layers having a thickness of approximately a fraction of a wavelength of the light to define a wavelength band for the signature.

13. The system of claim 13, wherein a value of a reflectance of the wavelength band is dependent upon the number of layers in the signature.

14. The system of claim 13, wherein the wavelength band has multiple absorption lines having a very narrow, approximately half-wave bandwidth that is undetectable by sensors that utilize band averaging techniques.

15. The system of claim 13, wherein the signature utilizes a bar code configuration that is invisible to the naked human eye and can be detected and identified remotely when applied to an exterior surface of an object.

16. The system of claim 13, wherein the light reflected by the signature is infrared light.

17. The system of claim 13, wherein the thin film is a dielectric and vapor-deposited on the substrate.

18. The system of claim 13, further comprising a center layer having a high index of refraction and located between the layers, the center layer also having a thickness that is greater than the thickness of the layers.

19. The system of claim 18, wherein the thickness of each of the layers is approximately one-quarter wavelength, and the thickness of the center layer is approximately one-half wavelength.

20. The system of claim 13, wherein a peak reflectance of the signature is in a range from 50 to 100% reflectance, which is higher than a reflectance of a structure on which the signature is located, and a minimum reflectance of the signature is approximately one-half percent reflectance, which is lower than the reflectance of the structure on which the signature is located.